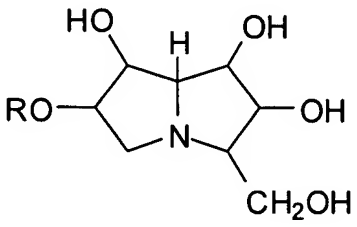
AMENDMENTS TO THE CLAIMS

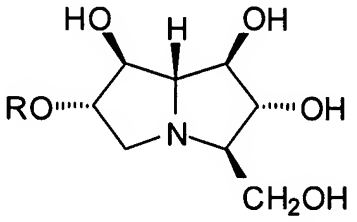
Claims 1-44 (canceled)

45. (new) A method for treating a disease associated with a deleterious immune response comprising administering to a patient in need of such treatment a therapeutically effective amount of a polyhydroxylated pyrrolizidine compound of formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups, or a pharmaceutically acceptable salt or acyl derivative thereof.

46. (new) A method according to claim 45 wherein the pyrrolizidine compound has the formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups, or a pharmaceutically acceptable salt or acyl derivative thereof.

47. (new) A method according to claim 45 wherein the pyrrolizidine compound is a glycosidase inhibitor.

48. (new) A method according to claim 45 wherein the pyrrolizidine compound, when administered *in vivo*, modifies one or more of:

(a) tumour cell glycosylation;

(b) viral protein glycosylation;

(c) cell-surface protein glycosylation;

(d) bacterial cell walls and

(e) cytokine release activity, by stimulation of secretion of one or more cytokine.

49. (new) A method according to claim 45 wherein the pyrrolizidine compound is an acyl derivative.

50. (new) A method according to claim 49 wherein the pyrrolizidine acyl derivative is chosen from a peracylated derivative, a derivative that is acylated at C-3 hydroxymethyl; a derivative that is acylated at C-6; and a derivative that is acylated at C-3 hydroxymethyl and C-6.

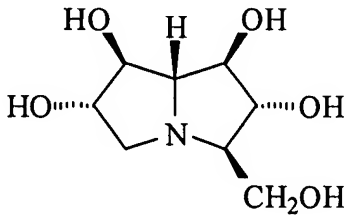
51. (new) A method according to claim 49 wherein the acyl derivative is an alkanoyl derivative selected from acetyl, propanoyl and butanoyl.

52. (new) A method according to claim 45 wherein R is a saccharide moiety.

53. (new) A method according to claim 52 wherein the saccharide moiety is a glucoside or arabinoside moiety.

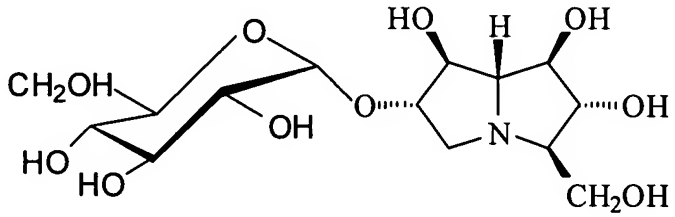
54. (new) A method according to claim 45 wherein the pyrrolizidine compound is chosen from:

(a) 1R,2R,3R,6S,7S,7aR)-3-(hydroxymethyl)-1,2,6,7-tetrahydroxypyrrolizidine (casuarine), wherein R is hydrogen and having the formula:



(b) a casuarine glycoside;

(c) casuarine-6-α-D-glucoside of the formula:



(d) 6-O-butanoylcasuarine;

(e) 3,7-diepi-casuarine;

(f) 7-epi-casuarine;

(g) 3,6,7-triepi-casuarine;

(h) 6,7-diepi-casuarine;

(i) 3-epi-casuarine;

(j) 3,7-diepi-casuarine-6-α-D-glucoside;

(k) 7-epi-casuarine-6-α-D-glucoside;

(l) 3,6,7-triepi-casuarine-6-α-D-glucoside;

(m)6,7-diepi-casuarine-6-α-D-glucoside;

(n) 3-epi-casuarine-6-α-D-glucoside, and

a pharmaceutically acceptable salt or derivative of any of (a) – (n).

55. (new) A method according to claim 45 wherein said polyhydroxylated pyrrolizidine compound is administered in combination with an additional therapeutic agent chosen from one or more of:

(a) an immunostimulant;

(b) a cytotoxic agent;

(c) an antimicrobial agent;

(d) an antiviral agent; and

(e) a primed dendritic cell.

56. (new) A method according to claim 46 wherein said disease is chosen from

(a) a proliferative disorder;

(b) a Th1-related disease or disorder;

(c) a Th2-related disease or disorder;

(d) a bacterial infection;

(e) a viral infection;

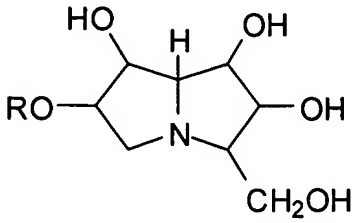
(f) a prion, fungal, protozoan or metazoan infection; and

(g) a disease associated with an intracellular pathogen.

57. (new) A method according to claim 56 wherein said viral infection is selected from respiratory syncytial virus (RSV), hepatitis B virus (HBV), Epstein-Barr, hepatitis C virus (HCV), herpes simplex type 1 and 2, herpes genitalis, herpes keratitis, herpes encephalitis, herpes zoster, human immunodeficiency virus (HIV), influenza A virus, hantann virus (hemorrhagic fever), human papilloma virus (HPV) and measles.

58. (new) A method for immunomodulation comprising administering to a patient in need of

such treatment a composition containing a therapeutically effective amount of a a polyhydroxylated pyrrolizidine compound of formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups, or a pharmaceutically acceptable salt or acyl derivative thereof.

59. (new) The method of claim 58 wherein said composition comprises a herbal medicine.

60. (new) A method according to claim 59 wherein said herbal medicine derives from one or more plant species sources selected from:

(a) a member of the taxon Myrtaceae

(b) a member of the taxon Casuarinaceae;

(c) a combination of two or more plant species selected from both of the taxons of (a) and (b).

61. (new) A method according to claim 58 wherein the Th1:Th2 response ratio is increased.

62. (new) A method for immunomodulation according to claim 58 chosen from

(a) haemorestoration;

(b) haemoablative immunotherapy;

(c) alleviation of immunosuppression;

(d) cytokine stimulation;

(e) vaccination, wherein the pyrrolizidine compound acts as an adjuvant;

(f) vaccination with a dendritic cell vaccine wherein the dendritic cells are contacted with the pyrrolizidine compound;

(g) administration of dendritic cells in the treatment or prophylaxis of autoimmune disorders, wherein the dendritic cells are contacted with the pyrrolizidine compound;

(h) wound healing;

(i) stimulating the innate immune response;

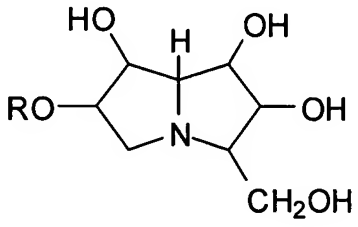
(j) boosting the activity of endogenous NK cells;

(k) inducing, potentiating or activating one or more cytokines in vivo; and

(l) providing chemoprotection to a patient undergoing chemotherapy.

63. (new) A vaccine comprising

(1) a polyhydroxylated pyrrolizidine compound of formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups;

in combination with

(2) an antigen,

said pyrrolizidine compound being present in an amount sufficient to produce an adjuvant effect on vaccination.